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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,809	11/26/2003	Eunsoo Shim	02003	8121

7590 08/24/2007  
NEC Laboratories America, Inc.  
4 Independence Way  
Princeton, NJ 08540

EXAMINER
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SABOURI, MAZDA

ART UNIT	PAPER NUMBER
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2617

MAIL DATE	DELIVERY MODE
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08/24/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/722,809

Applicant(s)

SHIM ET AL.

Examiner

Mazda Sabouri

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 2-10, 12-16, 18-20, 32 and 33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-20 is/are allowed.
- 6) ☒ Claim(s) 2-10, 12-16, 32 and 33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/18/2007 has been entered.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 2-10,12-16,32 and 33 have been considered but are moot in view of the new ground(s) of rejection.
3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 2-3,5-8,10,13-16,32 and 33** rejected under 35 U.S.C. 103(a) as being unpatentable over by INTERNET DRAFT "A Dynamic Protocol for Candidate Access-Router Discovery" (Trossen et al.) in view of US 6370380 (Norefors et al.). **Note that the pages cited from Trossen are the page numbers as defined within the article.**

7. **As to claim 5**, Trossen teaches a method comprising the steps of:

- a. Providing a mobile terminal (MN) with information from a first access node (PAR) prior to handoff to a second access node (NAR) (MN is provided the IP address of PAR and AP1) (see Trossen, pages 3 and 4).
- b. After handoff of the mobile terminal to the second access node, providing the second access node with information from the mobile terminal, wherein the information from the mobile terminal comprises information from the first access node (NAR receives the IP address of PAR and AP1) (see Trossen, pages 3 and 4).
- c. Receiving at the first access node a message from the second access node requesting verification of the information provided by the mobile terminal to

the second access node (GNE is sent by NAR to PAR requesting verification of information provided by MN) (see Trossen, page 4).

d. Verifying the information provided by the mobile terminal to the second access node before updating information on candidate access nodes in the mobile communication network (once the information is verified, the NAR stores the information provided by the MN in it's CAR list) (see Trossen, page 4).

e. What is explicitly lacking from Trossen is comparing a delay to a configurable threshold value, wherein the delay comprises a difference between a current system time and a stay time. . In a similar field of endeavor, Norefors teaches comparing a delay (time elapsed between the transmission of the token to the MT, and consequent transmission of the token to APnew) to a configurable threshold (excessive amount of time), wherein the delay comprises a difference between a current system time (time that APnew receives token from MT, note that the token is analogous to the RI message taught by Trossen) and a stay time (timestamp indicating time the MT receives token from AP old) (see Norefors, column 3, lines 22-33). Motivation for using Norefors teaching can be found in Trossen. Trossen teaches the need to determine whether or not the mobile terminal was recently present in the PAR's area for the purpose of verification (see Trossen, page 4). Norefors teachings help to achieve this need. It would have been obvious to one of ordinary skill in the arts at the time the invention was made to combine the teachings of Norefors into those of Trossen, for the reasons mentioned above.

8. **As to claim 13**, Trossen teaches an access node (PAR) comprising memory for storing information on candidate access nodes in a mobile communication network and a processor that executes device-readable instructions for performing the steps of:

- f. Providing a mobile terminal (MN) with information from the access node prior to handoff to a second access node (NAR) (MN has the IP address of the PAR and AP1) (see Trossen, pages 3 and 4).
- g. After handoff of the mobile terminal to the second access node, receiving a message from the second access node requesting verification of information provided by the mobile terminal to the second access node, wherein the information provided by the mobile terminal to the second access node comprises information from the access node (GNE is sent by NAR to PAR requesting verification of information provided by MN) (see Trossen, page 4).
- h. Verifying the information provided by the mobile terminal to the second access node before updating information on candidate access nodes in the mobile communication network (once the information is verified, the NAR stores the information provided by the MN in it's CAR list and the PAR also stores information on the NAR) (see Trossen, page 4).
- i. What is explicitly lacking from Trossen is comparing a delay to a configurable threshold value, wherein the delay comprises a difference between a current system time and a stay time. In a similar field of endeavor, Norefors teaches comparing a delay (time elapsed between the transmission of the token to the MT, and consequent transmission of the token to APnew) to a configurable

threshold (excessive amount of time), wherein the delay comprises a difference between a current system time (time that APnew receives token from MT, note that the token is analogous to the RI message taught by Trossen) and a stay time (timestamp indicating time the MT receives token from AP old) (see Norefors, column 3, lines 22-33). Motivation for using Norefors teaching can be found in Trossen. Trossen teaches the need to determine whether or not the mobile terminal was recently present in the PAR's area for the purpose of verification (see Trossen, page 4). Norefors teachings help to achieve this need. It would have been obvious to one of ordinary skill in the arts at the time the invention was made to combine the teachings of Norefors into those of Trossen, for the reasons mentioned above.

9. **As to claim 2**, Trossen further teaches that the information on candidate access nodes is recorded in a table (CAR list) and shared among mobile terminals in the mobile communication network (CAR list is transmitted to the MN, it is inherent that all MN in the NAR network would receive this list) (see Trossen, page 6).

10. **As to claim 3**, Trossen further teaches that the information from the first access node comprises the network address (IP address) of the first access node (see Trossen, page 3).

11. **As to claim 6**, Norefors further teaches that timestamps are used by the first and second access node to measure delay (see Norefors, page 4). Note that this teaching

provides further details to the teachings of Norefors already cited in the rejection of claim 5.

12. **As to claims 7 and 14**, Trossen further teaches that the information provided by the mobile terminal to the second access node comprises an identifier for the mobile terminal and wherein the information is verified by checking whether the mobile terminal that provided the information to the second access node is the same mobile terminal that communicated with the first access node prior to handoff (NAR checks with the PAR to see if the MN was recently present in the PAR's network. The identity of the MN must be sent to the NAR, in order to perform this step) (see Trossen, page 4).

13. **As to claims 8 and 15**, Trossen further teaches that the message from the second access node is authenticated (PAR confirms the validity of the information) (see Trossen, page 4).

14. **As to claims 10 and 16**, Trossen further teaches that the mobile terminals are IP devices and the access nodes are IP routers (see Trossen, page iv).

15. **As to claims 32 and 33**, note that the second access node (NAR) and first access node (PAR) are IP routers that communicate with each through IP protocol (see Trossen, page iv and 4). The nodes must have MAC addresses in order to facilitate communication through the data link layer.

16. **Claims 4,12**, rejected under 35 U.S.C. 103(a) as being unpatentable over INTERNET DRAFT "A Dynamic Protocol for Candidate Access-Router Discovery" (Trossen et al.) in view of US 6370380 (Norefors et al.) as applied to claims 5 and 13 above, and further in view of US 7065340 (Einola et al.)



17. **As to claims 4 and 12**, what is lacking is the information provided by the mobile terminal to the second access node comprising a ticket generated by the first access node. In a similar field of endeavor, Einola teaches a mobile terminal receiving a ticket (cipher key) from a first access node (first base station in the first mobile communication network) prior to handoff. After handoff, the mobile terminal provides the ticket to a second access node (second base station in the second mobile communication network). The second access node verifies the ticket with the first access node (the second base station verifies the cipher code provided by mobile terminal against the cipher code provided by the first base station) (see Einola, column 8, lines 4-22). The teaching of Einola allows the second access node to authenticate a mobile terminal after handoff. It would have been obvious to one of ordinary skill in the arts at the time the invention was made to combine the teachings of Einola into those of Trossen in view of Norefors, for the reasons mentioned above.

18. **Claim 9** rejected under 35 U.S.C. 103(a) as being unpatentable over INTERNET DRAFT "A Dynamic Protocol for Candidate Access-Router Discovery" (Trossen et al.) in view of US 6370380 (Norefors et al.) as applied to claim 5 above, and further in view of US 2004/0123142 (Dubal et al.).

19. **As to claim 9**, what is lacking is putting a limit on the number of message sent by the mobile terminal prior to verifying the information provided by the mobile terminal. In a similar field of endeavor, Dubal teaches placing limits on messages (received packets) between elements in a network. Dubal teaches that such limits help to prevent denial of service attacks (see Dubal, paragraphs 15-19 and figure 4). The teachings of

Dubel improve upon the method of Trossen by implementing steps to help prevent against denial of service attacks. It would have been obvious to one of ordinary skill in the arts at the time the invention was made to combine the teachings of Dubal into those of Trossen, for the reasons mentioned above.

***Allowable Subject Matter***

20. **Claims 18-20** allowed. The following is an examiner's statement of reasons for allowance:

21. **Claim 18** recites a mobile terminal that receives a ticket and information from a first access node prior to handoff. The mobile terminal transmits the ticket and information to a second access node after handoff. The second access node verifies the ticket with the first access node before updating information on candidate access nodes. The first and second access nodes use the ticket to measure a delay. The delay is measured by subtracting the ticket generation time and the stay time from the current system time. Prior art of record teaches many of the limitations recited in the claim. For instance, US 2005/0105491 (Chasker et al.) teaches a mobile terminal receiving information from a first access node (PAR) and sending that information to a second access node (NAR) after handover. The second access node verifies the information with the first access node before updating its candidate access node information. Chasker also teaches checking whether the mobile terminal was recently present at the first access node (see Chasker, paragraphs 26 and 53). What Chasker lacks is the verification of tickets and the use of a current system time, ticket generation

time and stay time for calculating a delay. US 7065340 (Einola et al.) and US 6370380 (Norefors et al.) have teachings applicable to the verification of tickets (see Einola, column 8, lines 4-22 and Norefors, column 2, lines 56-67 and column 3, lines 1-33). Norefors further teaches measuring a delay using a current system time and a ticket generation time (see Norefors, column 3, lines 22-33). However, none of the prior art teaches subtracting the ticket generation time and stay time from the current system time for the purpose of measuring a delay.

22. **Claims 19 and 20** are dependent on claim 18.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 2005/0105491 (Chaskar et al.) teaches protocol to determine optimal target access routers for seamless IP-level handover. US 2004/0166861 (Trossen) teaches handover of mobile node to a new access router. US 2004/0066764 (Koodli et al.) teaches a system and method for resource authorization during handovers. US 2002/0197979 (Vanderveen) teaches an authentication system for mobile entities.

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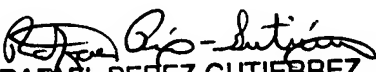
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mazda Sabouri whose telephone number is 571-272-8892. The examiner can normally be reached on Monday-Friday from 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez-Gutierrez can be reached on 571-272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mazda Sabouri  
Examiner  
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SUPERVISORY PATENT EXAMINER  
8/17/07